

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A semiconductor integrated circuit comprising a plurality of combinational logic components, a memory and a testing arrangement for configuring the memory prior to testing the combinational logic components using one or more scan chains, the arrangement comprising:

a data generator internal to the integrated circuit for generating a ~~predetermined~~ selected bit pattern for writing to the memory;

a switching arrangement for selectively switching the memory input to receive data from the combinational logic components or from the data generator; wherein

the switching arrangement and data generator are arranged for the data generator to input the ~~predetermined~~ selected bit pattern to the memory prior to testing the combinational logic components of the integrated circuit; and

a testing circuit for testing the combinational logic components after the data generator has input the selected bit pattern to the memory.

2. (Currently Amended) A semiconductor integrated circuit according to claim 1, the arrangement further comprising an enable input, the enable input being arranged to prevent writing to the memory after writing the selected ~~predetermined~~ bit pattern to memory.

3. (Original) A semiconductor integrated circuit according to claim 1, wherein the bit pattern for a given address comprises a function of the address bit sequence, and wherein the data generator is arranged to present the bit pattern at outputs corresponding to address inputs of the memory.

4. (Original) A semiconductor integrated circuit according to claim 1, the arrangement further comprising an arrangement of multiplexers to selectively connect the memory to the combinational logic components of the integrated circuit, or to the data generator.

5. (Original) A semiconductor integrated circuit according to claim 1, the arrangement further comprising an address generator for generating addresses of the memory to which the bit pattern is to be written, the data generator comprising an array of interconnections for transferring the address bit sequence from the address generator to a data input of the memory.

6. (Original) A semiconductor integrated circuit according to claim 1, wherein the pattern is a checkerboard pattern in the memory.

7. (Original) A semiconductor integrated circuit according to claim 1, wherein the pattern is so arranged that the RAM may be modeled as a simple combinational circuit.

8. (Original) A semiconductor integrated circuit according to claim 1, wherein the arrangement comprises a wrapper circuit for selectively preloading the memory, or for connecting the memory to other components in the integrated circuit.

9. (Original) A semiconductor integrated circuit according to claim 1, wherein the arrangement comprises a wrapper circuit and includes a control for selectively controlling the memory to behave as a ROM after writing the bit pattern to memory, and while testing the integrated circuit.

10. (Currently Amended) A semiconductor circuit comprising:
a memory array;
a plurality of logic elements selectively coupled to the memory array;

a data generator selectively coupled to the memory array for generating a ~~predetermined~~ selected bit pattern for writing to the memory;

a switching circuit for selectively coupling the logic elements or the data generator to input data into the memory array at a selected time under control of a control circuit;

a logic testing circuit coupled to the logic elements configured to test the operation of the logic elements based on the selected bit pattern present in the memory array.

11. (Original) The semiconductor circuit according to claim 10 wherein said switching circuit includes a multiplexer having one input coupled to the logic elements and another input coupled to the data generator and a control input coupled to the control circuitry to selectively connect the memory to the logic elements or to the data generator.

12. (Original) The semiconductor circuit according to claim 10 wherein said data generator creates a selected bit pattern for loading into the memory array prior to testing of the semiconductor circuit.

13. (Original) The semiconductor circuit according to claim 12 wherein the bit pattern which is selected for a given address in the memory array is a function of the address bit sequence.

14. (Currently Amended) The semiconductor circuit according to claim 10 in which the time selected for coupling the data generator to the memory array is prior to testing of the semiconductor circuit so that a ~~predetermined~~ selected bit pattern is input by the data generator into the semiconductor circuit prior to testing.

15. (Original) The semiconductor circuit according to claim 13 further comprising:

an address generator for generating addresses of the memory to which the bit pattern is to be written and the data generator includes an array of inner connections for transferring the address bit sequence from the address generator to a data input of the memory.

16. (Original) The semiconductor circuit according to claim 13 in which the bit pattern which is written to the memory is selected based on the type of memory to which the bit pattern is to be written.

17. (Original) The integrated circuit according to claim 16 wherein the memory is a RAM.

18. (Original) The semiconductor circuit according to claim 16 wherein the memory is a CAM.

19. (Original) The semiconductor circuit according to claim 10 wherein the control circuit selects a time for controlling input provided to the memory array and further including a memory array enable circuit to enable the input of data to the memory array prior to testing and to disable data input into the memory after a bit pattern has been written to the memory and during testing of the semiconductor circuit such that during testing, the memory array behaves as a ROM.

20. (Currently Amended) A method of testing logic in the same integrated circuit as a semiconductor integrated memory circuit comprising:

switching a memory input with a multiplexer to receive address, data, and control signals, in a first state, from an external interface or, in a second state, from an internal address counter, an internal data generator and an internal test control circuit;

during the second state:

generating an address with the internal address counter for determining the address at which data will be written;

coupling an output of the internal address counter with an input of the internal data generator;

generating a ~~predetermined~~selected bit pattern with the internal data generator based upon the value of the internal address counter;

writing the ~~predetermined~~selected bit pattern into memory at the location specified by the internal address counter; and

inputting selected data into the logic to be tested;

transferring signals from the logic to be tested to the memory and from the memory to the logic to test the logic.

21. (Currently Amended) ~~The A~~—method of testing logic in the same integrated circuit as the a semiconductor integrated memory circuit according to claim 20, wherein the ~~predetermined~~selected bit pattern to be generated consists of a checkerboard pattern.

22. (Currently Amended) ~~The A~~—method of testing logic in the same integrated circuit as the a semiconductor integrated memory circuit according to claim 21, wherein memory to be tested consists of a Content Addressable Memory.

23. (New) The method of claim 20 further including:

placing the memory in a state that simulates a combinatorial logic function.

24. (New) A method of testing logic elements that are in the same integrated circuit as a memory array comprising:

inputting to the memory array a selected pattern of data bits, the pattern being selected to configure the memory array to operate as a combinatorial logic circuit for the input of signals and the output of signals based on the input;

setting the integrated circuit in logic test mode for testing logic that is outside of the memory array;

inputting signals from the logic into the memory array as part of testing the logic;

receiving output from the memory array as part of testing the logic, the memory acting as a portion of the logic circuit during the testing of the logic elements of the integrated circuit.

25. (New) The method according to claim 24 further including:

sending signals via a scan chain between respective logic elements being tested.